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U.S. Serial No. 10/506,905
Docket No. 742111-161**REMARKS**

Claims 1-15 are pending. By this Amendment, claims 1, 9, and 15 are amended. Basis for the amendments to claim 1 and claim 15 is found on page 5, in the paragraph on lines 6-19 and in Fig. 1. Basis for the amendment to claim 9 is found on page 6, in the last paragraph beginning on line 29 and spanning onto page 7, and in Fig. 2 in combination with page 14, in the paragraph on lines 8-21.

Applicants gratefully acknowledge the indication of allowable subject matter in claim 11. It is believed that claim 1 and its other dependent claims are allowable as well, so claim 11 is not written in independent form at this time.

In the Office Action, the abstract is objected to because of the inclusion of legal phraseology. A new abstract is submitted herewith that complies with the requirements. The objection should be withdrawn.

Claims 1-3, 9, and 13 are rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 6,027,019 to Kou (Kou '019) in view of U.S. Patent No. 6,762,847 to Duquette (Duquette). The Office Action asserts that Kou discloses the method of claim 1 with the exception of a scanner/camera spanning over a series of feeders and providing an image for analysis and feeder ID determination. Duquette, according to the Office Action, discloses a scanner/camera capable of detecting multiple components from feeders by employing multiple light sources and using the obtained coordinates to identify the components. The Office Action states that it would have been obvious "to incorporate Duquette's teachings by employing a replacement camera having multiple light sources for detecting the coordinates as ID's of multiple feeders in the slots. One of ordinary skill in the art should be motivated to have such a camera for its ability to scan multiple objects simultaneously and thus improve production time."

Applicants agree that Kou '019 fails to mention a camera that spans over the series of feeders to provide an image for analysis and for feeder ID determination. However, Duquette concerns scanning of components after the components have been picked up from the feeders and before placement on the electronic board. The components are placed between light sources and a detector that examines the shadow cast of the component. Duquette does not remedy the deficiency of Kou as explained below.

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The Kou '019 system concerns a control mechanism to control feeder IDs, and the Duquette system concerns a control mechanism for the orientation of a component. Thus, the references are directed to two different types of control systems. A combination of the Kou '019 system and the Duquette system does not provide any suggestion for a modification of the feeder control system. Combining the systems, assuming such a combination can be made, would merely led to a feeder control system, such as by Kou '019, followed by a component orientation control system, such as by Duquette. Moreover, the prior art does not provide any motivation for combining two such different systems.

Claim 1 recites the step of providing a camera for providing an image spanning over a series of feeder slots and, in the image, imaging all feeder IDs of the feeders in the feeder series of feeder slots simultaneously. This provides a very fast system since the simultaneous imaging of all feeders does not require a stepwise movement of the camera or movement of the table, as would Kou '019 with sequential imaging of single feeders, but only requires an electronic analysis after the single imaging. This arrangement is much faster than a mechanical scanning, and it follows that a scanning can be performed quickly before starting the machine, without loss of valuable production time. This is not disclosed in the prior art.

Further, the prior art provides no motivation to provide such a system. A person of ordinary skill in the art, having the Kou '019 system as a starting point, would find no motivation in Kou to increase the control speed. Additionally, a method for increasing the control speed would have to be suggested from the prior art, and no such suggestion has been shown.

The last paragraph of page 3 of the Office Action states that multiple light sources are used for the orientation detection. However, even if multiple light sources are used for illumination of the feeder IDs, this does not provide motivation to modify Kou '019 to result in the claimed combination of features of claim 1. A camera setup similar to Duquette's would not be useful for imaging multiple feeder ID's. This is due to the fact that the camera in Duquette does not have optics and only receives information from the shadow cast of the components. Feeder ID's, which are typically bar codes, cannot cast any shadow, but as recited in claim 1 are imaged with an entirely different system involving a camera (and appropriate optics) which not only spans the series of slots, but also actually images the feeder IDs into an image such that the information of the feeder ID is contained in the image

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for further analysis. Neither reference discloses or suggests this arrangement. As such, claim 1 is not rendered obvious by the combination of Kou '019 and Duquette. Claim 1 is allowable.

Claim 4 is rejected under 35 U.S.C. §103(a) as being unpatentable over Kou '019 in view of Duquette and further in view of U.S. Patent Publication No. 2002/0053133 to Suhara et al. (Suhara).

Suhara was published on May 9, 2002. This application has the benefit of a priority date of March 8, 2002. Therefore, Suhara is not prior art to this application. The rejection is in error and should be withdrawn. Claim 4 is allowable for at least the reasons recited above and for the additional features recited therein.

Claims 5-8 are rejected under 35 U.S.C. §103(a) as being unpatentable over Kou '019 in view of Duquette and U.S. Patent No. 5,878,151 to Tang (Tang) and U.S. Patent No. 6,778,878 to Kou (Kou '878).

The Office Action states the combination of Kou '019 and Duquette fail to indicate that the image is analyzed to calibrate the positions of the feeders. Tang is added to teach of using an image taken for the feeders and assign the coordinates captured to the feeders so that errors leading to malfunctioning of the machine can be minimized by ensuring the accurate positions of the feeders. Kou '878 is added to the rejection to show that displaceable feeder platforms are known in the prior art. However, neither Tang nor Kou '878 remedy the deficiencies of the combination of Kou '019 and Duquette discussed above. Therefore, for at least these reasons, claims 5-8 are not rendered obvious by asserted combination of references.

Claim 10 is rejected under 35 U.S.C. §103(a) as being unpatentable over Kou '019 in view of Duquette and U.S. Patent Publication No. 2002/0124391 to Kawai et al. (Kawai).

Kawai was published on Sept. 12, 2002. This application has the benefit of a priority date of March 8, 2002. Therefore, Kawai is not prior art to this application. The rejection is in error and should be withdrawn. Claim 10 is allowable for at least the reasons recited above and for the additional features recited therein.

Claim 12 is rejected under 35 U.S.C. §103(a) as being unpatentable over Kou '019 in view of Duquette and U.S. Patent Publication No. 2002/0143423 to Huber et al. (Huber).

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Huber was published on Oct. 3, 2002. This application has the benefit of a priority date of March 8, 2002. Therefore, Huber is not prior art to this application. The rejection is in error and should be withdrawn. Claim 12 is allowable for at least the reasons recited above and for the additional features recited therein.

Claim 14 is rejected under 35 U.S.C. §103(a) as being unpatentable over Kou '019 in view of Duquette and U.S. Patent Publication No. 2003/0219330 to Lyndaker et al. (Lyndaker).


Lyndaker was published on Nov. 27, 2003. This application has the benefit of a priority date of March 8, 2002. Therefore, Lyndaker is not prior art to this application. The rejection is in error and should be withdrawn. Claim 14 is allowable for at least the reasons recited above and for the additional features recited therein.

Claim 15 is rejected under 35 U.S.C. §103(a) as being unpatentable over Kou '019 in view of Duquette and U.S. Patent Publication No. 2004/0186616 to Overman et al. (Overman).

Overman was published on Sept. 23, 2004. This application has the benefit of a priority date of March 8, 2002. Therefore, Overman is not prior art to this application. The rejection is in error and should be withdrawn. Claim 15 is allowable for at least the reasons recited above and for the additional features recited therein.

It is respectfully submitted that all of the claims are allowable and that the application is in condition for allowance. Should further issues need resolution, the Examiner is requested to call the undersigned. Prompt and favorable reconsideration is requested.

Respectfully submitted,


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